

Multi-A.U. SOLAROSA Concentrator Solar Array for Space Science Missions, Phase I

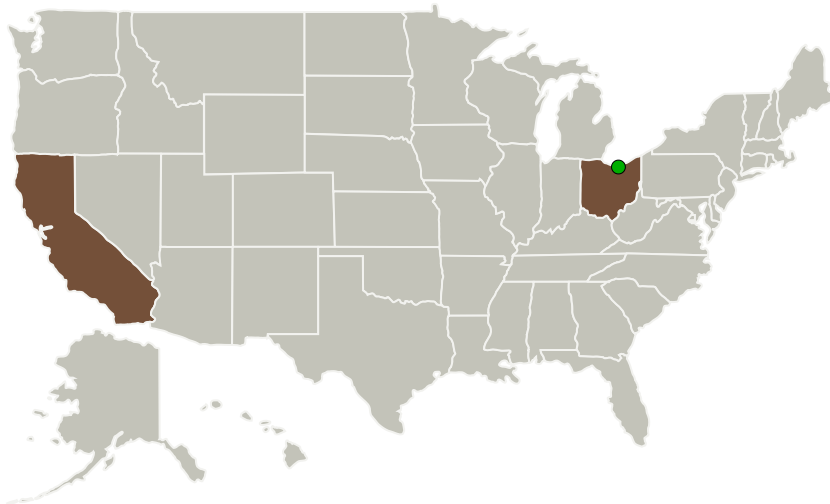
Completed Technology Project (2013 - 2013)



Project Introduction

Deployable Space Systems, Inc. (DSS), in partnership with Mark O'Neill LLC (MOLLC) will focus the proposed NASA Phase 1 effort on the development of our innovative SOLAROSA technology. SOLAROSA, named for Stretched Optical Lens Architecture on Roll-Out Solar Array, is a new lightweight, high performance space solar array that enables missions through low cost, lightweight, compact stowage volume, radiation hardness, high voltage capability, scalability to ultra-high power, and LILT/HIHT environment operability. SOLAROSA is a fusion of ENTECH's proven Stretched Lens Array (SLA) concentrator technology with DSS's innovative ultra-lightweight Roll-Out Solar Array deployable structural platform. The proposed Phase 1 program is uniquely focused on SOLAROSA development that provides multi-A.U. operability and large beta axis off-pointing operational capability. SOLAROSA promises to provide NASA/industry a near-term and low-risk solar array system that provides revolutionary performance in terms of high specific power (>400-500 W/kg BOL at wing level), affordability (>50% projected cost savings at the array level), lightweight, high deployed stiffness, high deployed strength, compact stowage volume (>60-80 kW/m³ BOL), reliability, high radiation tolerance, high voltage operation capability, scalability, and LILT & HIHT operation capability (LILT – Low Intensity Low Temperature, HIHT – High Intensity High Temperature).

Primary U.S. Work Locations and Key Partners



Multi-A.U. SOLAROSA Concentrator Solar Array for Space Science Missions

Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Project Transitions	2
Images	2
Organizational Responsibility	2
Project Management	2
Technology Maturity (TRL)	3
Technology Areas	3
Target Destinations	3

Multi-A.U. SOLAROSA Concentrator Solar Array for Space Science Missions, Phase I

Completed Technology Project (2013 - 2013)



Organizations Performing Work	Role	Type	Location
Deployable Space Systems, Inc(DSS)	Lead Organization	Industry	Goleta, California
● Glenn Research Center(GRC)	Supporting Organization	NASA Center	Cleveland, Ohio

Primary U.S. Work Locations

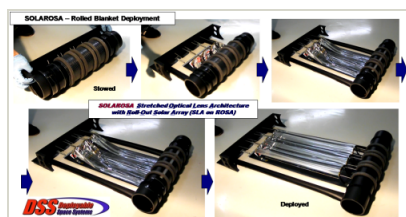
California	Ohio
------------	------

Project Transitions

**May 2013:** Project Start**November 2013:** Closed out**Closeout Documentation:**

- Final Summary Chart(<https://techport.nasa.gov/file/140450>)

Images

**Project Image**

Multi-A.U. SOLAROSA Concentrator Solar Array for Space Science Missions
(<https://techport.nasa.gov/image/134591>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Deployable Space Systems, Inc (DSS)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Brian R Spence

Co-Investigator:

Brian Spence

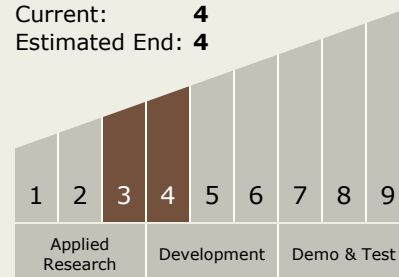
Multi-A.U. SOLAROSA Concentrator Solar Array for Space Science Missions, Phase I

Completed Technology Project (2013 - 2013)



Technology Maturity (TRL)

Start: **3**
Current: **4**
Estimated End: **4**



Technology Areas

Primary:

- TX03 Aerospace Power and Energy Storage
 - └ TX03.1 Power Generation and Energy Conversion
 - └ TX03.1.1 Photovoltaic

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System